Webportal Applications: Automated Student Clearance Portal

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***Abstract*—Web portals are often designed to provide access to information from diverse sources in a uniform manner. This paper presents the development of a specialized portal designed to be used by graduating students to undertake clearance processes from the different departments after their studies in the university. Traditional Clearance forms are provided by university institutions to graduating students, which have to be taken in hard copy to the different offices for signing and when duly signed, confirms that the student has fulfilled all requirements and is not indebted to any of the departments or units that the student was associated with within the institution. This approach has been found to be time consuming as the students have to physically visit each office. The development of a portal based approach provides portal access to the authorized officers to access the students' clearance page and clear the student without the student needing to visit the officer. This system is configured to send email reminders and is also interfaced with the GSM-SMS system to send alerts to both the officer required to do the clearance and the student. The portal was developed using the HTML and PHP packages while the database was implemented using the MySQL database package.**

***Index Terms*—Web Portal, Clearance Form, HTML, PHP, MySQL Database, WAMP server.**

I. Introduction

A web portal is a website that brings information from diverse sources in a unified way. Usually each information source gets its dedicated area on the page for displaying information (a portlet); often, the user can configure which ones to display. Apart from the standard search engine feature, web portals offer services such as email, news, stock prices, information and databases, and entertainment [1].

The increase in the adoption and penetration of the Internet Technology led to the proliferation of web browsers in the late 1990s, companies either developed their portals or acquired portals from other developers to be able to partake of the internet market. Netscape became a part of America Online, the Walt Disney Company launched Go.com, IBM and others launched Prodigy, and Excite and @Home became a part of AT&T Corporation during the late 1990s. Lycos was said to be a good target for other media companies such as CBS [2].

The objectives for the implementation of portals by most companies include attracting, engaging, converting and retaining customers. Increasing top line revenue is usually the primary driver, with customer satisfaction and lowering the cost and improving the quality of the services being provided to its constituency. It facilitates the development of closer relationships with customers and some sites allow visitors to create a custom view of the function that is most relevant to them so that they can quickly find information they need when they visit [3].

Web portal applications for Educational purposes enable the creation of a common gateway to the data and services and facilitate the effective sharing of information through the campus of organization. Education Portals can be built on available technologies such as Microsoft Office SharePoint Server and Windows Server - thus extending the value of your existing technology investment [4]. Hypertext Mark-Up Language (HTML) is a language that specifies how a webpage is to be displayed in a browser. It is used to create documents that can be accessed over the web. This is used to control the appearance of the web page and content.

Hypertext Preprocessor (PHP) is a server-side scripting language designed specifically for the web. The PHP code is interpreted at the server and generates HTML or other output that the visitor will see. It runs on the web browser and not on the web server. PHP is a server side HTML embedded scripting language for creating dynamic web pages. MySQL Database is a very fast, robust, relational database management system (RDBMS).

MySQL server controls access to your data to ensure that multiple users can work with it concurrently. It runs on a server daemon where users on the same or even remote computers can connect. WAMP is an acronym formed from the initials of the operating system (WINDOWS) and the package's principal components: Apache, MySQL and PHP. Apache is a webserver which allows people with web browsers like internet explorer or Firefox to connect to a computer and see information there as web pages.

The different classification of portals and the applications and types are shown in Figure 1.

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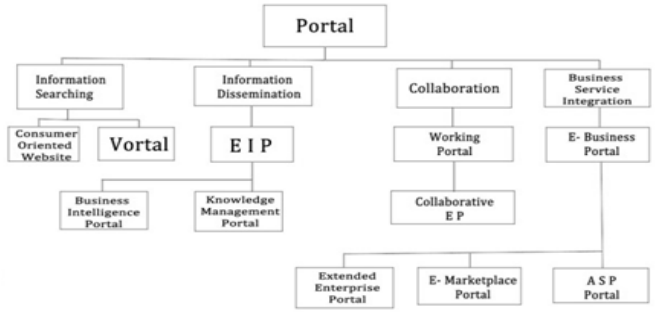

Fig. 1. Classification of Portals.

II. DESIGN REQUIREMENTS

The design requirement are broken into functional requirements, which explain what the application should accomplish, and non-functional requirements, which explain or communicate how the application should work, listed in order of descending practical functionality and desirability.

A. Functional Requirements

1) Staff Login Page
2) Student Registration Form
3) View Student Form
4) Student Login Form
5) Student Portal Page
6) Clearance Request Confirmation Page
7) Unit Portal Page
8) Clearance Submission Form

B. Non Functional Requirements

1) Security
2) Database Integrity
3) Portability
4) User Content requirements

III. SYSTEM MODELLING

Different types of models are deployed in system design based on the type of approaches used in the system abstraction. They include: The architectural model, Data flow model, Composition model, Stimulus-response model and Classification model.

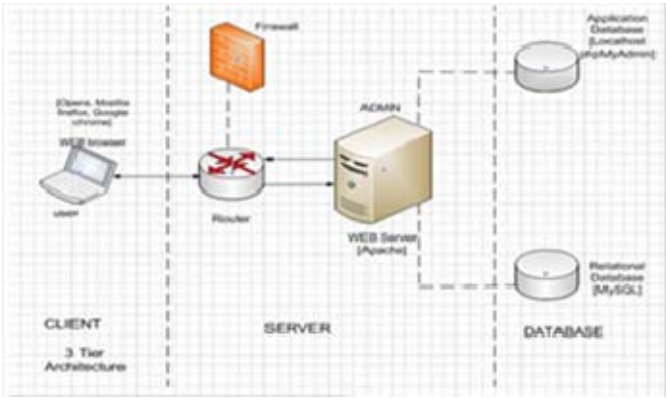

Fig. 2. The Diagram for System analysis and design

This diagram in figure 2 explains how different computers can be connected to a WAMP server which comprises of Windows, Apache, MySQL and PHP scripting language.

Fig. 3. System flow chart diagram

The figure 3 shows the flow chart diagram of the Automated Student Clearance Portal.

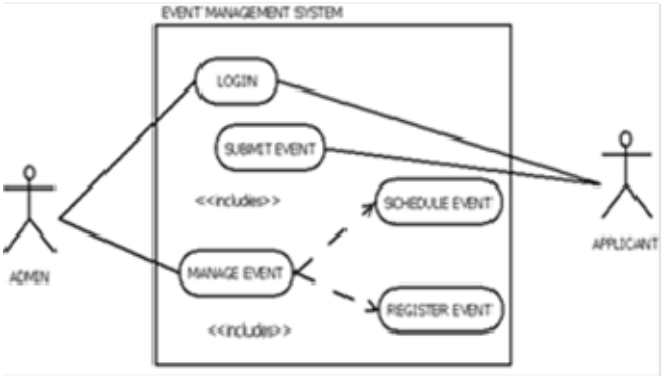

Fig. 4 A USE CASE diagram

The USE CASE diagram is shown in Figure 4. The description of the different components is described below:

ADMINISTRATOR: The Administrator is saddled with the responsibility of managing the events, registering applicants and also to schedule event.

APPLICANT (STUDENT): The student enters his matriculation number which serves as his user name and also his registration number which serves as his password.

The student then submits his request after inputting his data.

IV. DEVELOPMENT APPROACH

This section highlights the programming Language used, the server used and data structures for transmitting information.

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A. HYPERTEXT MARK UP LANGUAGE (HTML)

The HTML Language is one that specifies how a web page is to be displayed in a browser. It is therefore used to create documents that can be accessed over the web.

B. HYPERTEXT PREPROCESSOR (PHP)

PHP is a server side scripting language designed specifically for the web it runs on the web browser and not on the web server.

C. MySQL

MySQL is a very fast, robust, relational database management system (RDMS).It controls access to your data to ensure that multiple users can work with it concurrently, to provide fast access to it, and to ensure that only authorized users can obtain access.

V. SYSTEM TESTING

System testing of software or hardware is the testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements [5].

All the hardware and software modules of the Clearance Portal System were tested thoroughly for possible bugs and performance issues.

Both Alpha and Beta Software testing approaches were performed after the development of the System. Compatibility tests were also performed to ensure the workability of the software components of the system with different hardware and operation system platforms. The figures 5 to 9 show the webpages of the portal undergoing different stages of testing.

Fig. 5. Student's registration page

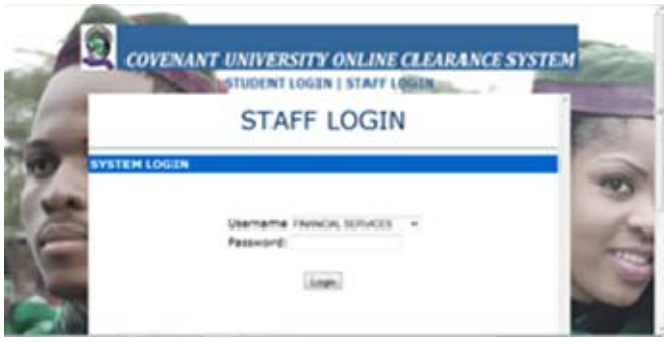

Fig. 6. Staff log-in page (e.g. Financial services staff)

Fig. 7. Portal showing all students awaiting clearance

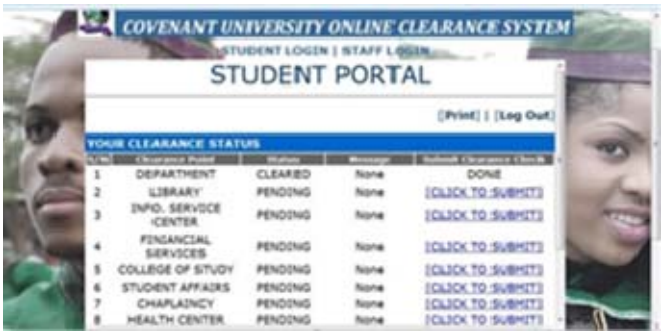

Fig. 8. Portal showing clearance progress with departments yet to approve students showing as pending

Fig. 9. Portal showing students' final status when fully cleared

VI. CONCLUSION

The use of ICT tools to engage in the management of processes in institutions and organizations has been shown to be of immense benefit. Processing operations which were error prone and which took a lot of time to implement can be done efficiently and on time. These are some of the many benefits the implementation of the Web based automated students clearance portal can bring to bear on the university clearance processes.

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